

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

**(19) World Intellectual Property Organization
International Bureau**



**(43) International Publication Date
2 June 2005 (02.06.2005)**

PCT

(10) International Publication Number
WO 2005/050172 A3

(51) International Patent Classification⁷: H01J 49/41

(21) International Application Number: PCT/US2004/041171

(22) International Filing Date: 15 November 2004 (15.11.2004)

(25) Filing Language: English

(30) Priority Data:

66/319,591 14 November 2005 (14.11.2005) 65

(71) **Applicant (for all designated States except US): INDIANA UNIVERSITY RESEARCH AND TECHNOLOGY CORPORATION [US/US]; 351 West 10th Street, Indianapolis, IN 46202 (US).**

(72) Inventors; and

(75) **Inventors/Applicants (for US only): REILLY, James, P. [US/US]; 1001 South Nota Drive, Bloomington, IN 47401 (US). THOMPSON, Matthew, S. [US/US]; Apartment 424, 800 North Smith Road, Bloomington, IN 47408 (US).**

(74) Agent: MICHAEL, Jeffrey, A.; Barnes & Thornburg LLP, 11 South Meridian Street, Indianapolis, IN 46204 (US).

(81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

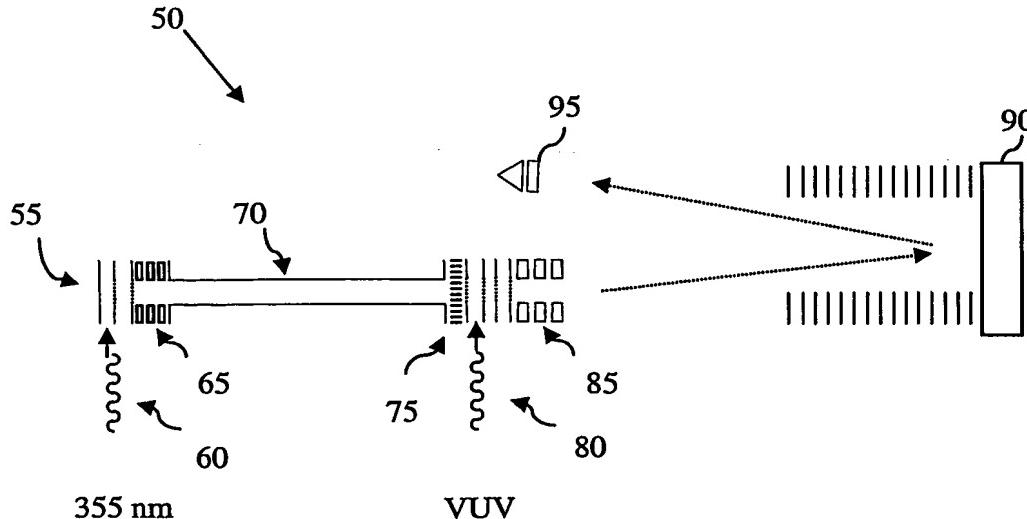
(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
 - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: METHODS AND APPARATUS FOR MASS SPECTRAL ANALYSIS OF PEPTIDES AND PROTEINS



(57) Abstract: Apparatus, device, and methods for fragmenting high molecular weight molecular ions, such as peptides or proteins, by treating the ions with predetermined wavelengths of light are described. Vacuum ultraviolet radiation as a source of predetermined wavelengths of laser light is described in one embodiment. A device (50) is described having a sample, such as a peptide, protein, protein digest, and the like enters through inlet (55) and is irradiated with a first source of light (60), which illustratively may be a laser light. The first source of laser light is illustratively at a wavelength and energy sufficient to convert molecules in the sample into molecular or precursor ions.



(88) Date of publication of the international search report:
22 December 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.